PART III. REGULATIONS FOR INLAND WETLANDS

3.01 Inland Banks (Naturally Occurring Banks and Beaches)

(1) Preamble

Banks are likely to be significant to wildlife and wildlife habitat, public or private water supply, ground water supply, flood control, storm damage prevention, the prevention of pollution and the protection of fisheries. Where Banks are composed of concrete, asphalt or other artificial impervious material, said Banks are likely to be significant to flood control and storm damage prevention.

Banks are areas where ground water discharges to the surface and where, under some circumstances, surface water recharges the ground water.

Where Banks are partially or totally vegetated, the vegetation serves to maintain the Bank's stability by holding soils in place and reducing erosion.

Naturalized vegetation on a bank aids in pollution prevention and in the protection of water quality by capturing sediment to which pollutants such as phosphorus, petrochemicals, pathogens and some heavy metals are known to adhere. Excessive amounts of phosphorus fertilize noxious aquatic weeds and promote algal blooms. Vegetation also buffers the temperature of stormwater runoff which might otherwise alter chemical and biological composition of the wetland. (*Massachusetts Vegetated Buffer Manual 2003*).

Banks provide wildlife habitat, offering cover for wildlife and a transitional area for food sourcing. Banks may play a role in the propagation of wildlife by providing nesting or breeding sites for birds, reptiles and mammals. Overhanging vegetation along the shoreline serves to provide shade, thereby moderating water temperature.

Banks act to confine flood waters during storms, preventing the spread of water to adjacent land.

Land within 100 feet of a bank is likely to be significant to the protection and maintenance of the bank, and therefore to the protection of the interests which these resource areas serve to protect.

(2) Definitions, Critical Characteristics and Boundary

(a) A Bank is the portion of a land surface~~s~~ which normally abuts and confines a water body. A Bank may be partially or totally vegetated, or it may be comprised of exposed soil, gravel, stone or sand.

(b) The physical characteristics of a Bank, as well as its location, as described in the foregoing subsection (2)(a) are critical to the protection of the interests specified in Section 3.01(1).

(c) The upper boundary of a Bank is the first observable break in the slope above the mean annual flood level. The lower boundary of a Bank is the mean annual low water level.

(3) Performance Standards

Any proposed work, permitted by the Commission, on a bank or within 100 feet of the upper boundary of a bank, shall not impair the following:

(a) the physical stability of the bank;

(b) the water carrying capacity of the existing channel within the bank;

(c) ground water and surface water quality;

(d) the capacity of the bank to provide breeding habitat, escape cover and food for fisheries and other wildlife; or

(e) the habitat of rare or endangered plant or animal species.

(f) No activity, other than the maintenance of an already existing structure, which will result in the building within or upon, removing, filling, or altering of the bank or of any land within 50ft of any bank shall be permitted by the Commission, except for activity which is allowed under Part IV, section 4.01(d) or any other activity permitted under a variance from the regulations granted pursuant to Part IV, section 4.03.

3.02 Vegetated Wetlands (Wet Meadows, Marshes, Swamps, and Bogs)

(1) Preamble

Vegetated Wetlands are likely to be significant to wildlife and wildlife habitat, public or private water supply, ground water supply, flood control, storm damage prevention, prevention of pollution, the protection of fisheries, and the protection of shellfish.

The plant communities, soils and associated low, flat topography of Vegetated Wetlands remove or detain sediments, nutrients (such as nitrogen and

phosphorous) and toxic substances (such as heavy metal compounds) that occur in runoff and flood waters.

Some nutrients and toxic substances are detained for years in plant root systems or in the soils. Others are held by plants during the growing season and released as the plants decay in the fall and winter. This latter phenomenon delays the impacts of nutrients and toxins until the cold weather period, when such impacts are less likely to reduce water quality.

Vegetated Wetlands are areas where ground water discharges to the surface and where, under some circumstances, surface water discharges to the ground water or where water may be perched for extended periods during the growing season so that wetland vegetation becomes established.

The profusion of vegetation and the low, flat topography of most Vegetated Wetlands slow down and reduce the passage of flood waters during periods of peak flows by providing temporary flood water storage, and by facilitating water removal through evaporation and transpiration. This reduces downstream flood crests and resulting damage to private and public property. During dry periods the water retained in Vegetated Wetlands is essential to the maintenance of base flow levels in ditches, rivers and streams, which in turn is important to the protection of water quality and water supplies.

Some Vegetated Wetlands in Chatham are within kettle holes, characteristically surrounded by steep sloping embankments. These banks, especially when vegetated, function similarly to inland banks by containing flood waters, protecting water quality, providing wildlife habitat and by preventing pollution.

In some cases, Vegetated Wetlands may serve as vernal pool habitat. A Vegetated Wetland is presumed to serve as vernal pool habitat if the wetland has the characteristics identified in section 3.06.

Wetland vegetation provides shade that moderates water temperatures important to the biological community. Wetlands flooded by adjacent water bodies and waterways provide food, breeding habitat and cover for a variety of vertebrates and invertebrates. Fish populations in the larval stage are particularly dependent upon food provided by overbank flooding which occurs during peak flow periods (extreme storms), because most river and stream channels do not provide quantities of the microscopic plant and animal life required.

Wetland vegetation supports a wide variety of insects, reptiles, amphibians, mammals and birds.

Vegetated Wetlands, together with land within 100 feet of a vegetated wetland, serve to moderate and alleviate thermal shock and pollution resulting from runoff

from impervious surfaces which may be detrimental to wildlife, fisheries, and shellfish downstream of the vegetated wetland.

The maintenance of base flows by vegetated wetlands is likely to be significant to the maintenance of a proper salinity ratio in estuarine areas downstream of the vegetated wetland. A proper salinity ratio, in turn, is essential to the ability of shellfish to spawn successfully, and therefore to provide for the continuing procreation of shell fisheries.

Land within 100 feet of a Vegetated Wetland is likely to be significant to the protection and maintenance of vegetated wetlands, and therefore to the protection of the interests which these resource areas serve to protect.

(2) Definition, Critical Characteristics and Boundary

(a) Vegetated Wetlands are freshwater wetlands. The types of freshwater wetlands are bogs, swamps, wet meadows and marshes. Vegetated Wetlands may serve as vernal pool habitat. (See section 3.06 for characteristics and presumption.) Vegetated Wetlands may be areas where the topography is low and flat, and where the soils are annually saturated. The ground and surface water regime and the vegetative community which occur in each type of freshwater wetland are specified in Section 3.02 (2)(c).

(b) The physical characteristics of Vegetated Wetlands, as described in the foregoing subsection (2) (a), are critical to the protection of the interests specified in Section 3.02 (1) above.

(c) The boundary of Vegetated Wetlands is the line within which 40 percent or more of the vegetative community consists of the wetland plant species identified in Sections 3.02 (2)(c)(1) through 3.02 (2)(c)(4). Other indicators of hydrology may be considered in the delineation of the wetland boundary including, but not limited to, presence of hydric soils and/or direct observations of inundation, water marks, sediment deposits, water-stained leaves, caddisfly cases, or morphological plant adaptations resulting from inundation or saturation during the growing season.

(1) The term "bogs" as used in this section shall mean areas where standing or slowly running water is near or at the surface during a normal growing season and where a vegetative community has a significant portion of the ground water or surface covered with sphagnum moss (*Sphagnum*) and where the vegetative community is made up of a significant portion of one or more of, but not limited to nor

necessarily including all, of the following plants or groups of plants: aster (*Aster nemoralis*), azaleas (*Rhododendron canadense and R. viscosum*), black spruce (*Picea mariana*), bog cotton (*Eriophorum*), cranberry (*Vaccinium macrocarpon*), highbush blueberry (*Vaccinium corymbosum*), larch (*Larix laricina*), laurels (*Kalmia angustifolia* and *K. polifolia*), leatherleaf (*Chamaedaphne calyculata*), orchids (*Arethusa, Calopogon, Pogonia*), pitcher plants (*Sarracenia purpurea*), sedges (*Cyperaceae*), sundew (*Droseraceae*), sweet gale (*Myrica Gale*), white cedar (*Chamaecyparis thyoides*).

(2) The term "swamps" as used in this section shall mean areas where ground water is at or near the surface of the ground for a significant part of the growing season or where runoff water from surface drainage frequently collects above the soil surface, and where a significant part of the vegetative community is made up of, but not limited to or necessarily including all,the following plants or groups of plants: alders (*Alnus*), ashes (*Fraxinus*), azaleas (*Rhododendron canadense* and *R. viscosum*), black alder (*Ilex verticillata*) black spruce (*Picea mariana*), button bush (*Cephalanthus occidentalis*), American or white elm (*Ulmus americana*), white hellebore (*Veratrum viride*), hemlock (*Tsuga canadensis*), highbush blueberry (*Vaccinium corymbosum*), larch (*Larix larcinia*), cowslip (*Caltha palustris*), poison sumac (*Vernix toxicodendron*), red maple (*Acer rubrum*), skunk cabbage (*Symplocarpus foetidus*), sphagnum mosses (*Sphagnum*), spicebush (*Lindera benzoin*), black gum tupelo (*Nyssa sylvatica*), sweet pepper bush (*Clethra alnifolia*), white cedar (*Chamaecyparis thyoides*), willow (*Salicaceae*), common reed (*Phragmites communis*)

(3) The term "wet meadows" as used in this section shall mean areas where ground water is at the surface for a significant part of the growing season and near the surface throughout the year and where a significant part of the vegetative community is composed of various grasses, sedges and rushes, made up of, but not limited to or necessarily including all, the following plants or groups of plants: blue flag (*Iris*), vervain (*Verbena*), thoroughwort (*Eupatorium*), dock (*Rumex*), false loosestrife (*Ludwigia*), hydrophilic grasses (*Gramineae*), loosestrife (*Lythrum*), marsh fern (*Dryopteris thelypteris*), rushes (*Juncaceae*), sedges

(*Cyperaceae*), sensitive fern (*Onoclea sensibilis*), smart weeds (*Polygonum*), jewelweed (*Impatiens capensis*).

(4) The term "marshes" as used in this section, shall mean areas where a vegetative community exists in standing or running water during the growing season and where a significant part of the vegetative community is composed of, but not limited to nor necessarily including all , the following plants or groups of plants: arums (*Araceae*), bladder worts (*Utricularia*), bur-reeds (*Sparganiaceae*), button bush (*Cephalanthus occidentalis*), cattails (*Typha*), duck weeds (*Lemnaceae*), eelgrass (*Vallisneria*), frog's-bit (*Hydrocharitaceae*), horsetails (*Equisetaceae*), hydrophilic grasses (*Gramineae*), leatherleaf (*Chamaedaphne calyculata*), pickerel weeds (*Pontederiaceae*), pipeworts (*Eriocaulon*), pond weeds (*Potamogeton*), rushes (*Juncaceae*), sedges (*Cyperaceae*), smart weeds (*Polygonum*), sweet gale (*Myrica gale*), water milfoil (*Halograceae*), water lilies (*Nymphaeaceae*), water start worts (*Callitrichaceae*), water willow (*Decodon verticiflatus*).

(3) Performance Standards

Any proposed work, permitted by the Commission, in a vegetated wetland or within 100 feet of a vegetated wetland shall not:

(a) destroy any portions of said vegetated wetland;

(b) limit the capacity of the adjacent slope to perform its functions [section 3.02(1)];

(c) impair in any way the vegetated wetland's ability to perform any of the functions in section 3.02(1).

(d) No activity, other than the maintenance of an already existing structure, which will result in the building within or upon, removing, filling, or altering a vegetated wetland or of any land within 50ft of any vegetated wetland shall be permitted by the Commission, except for activity which is allowed under Part IV, section 4.01(d) or any other activity permitted under a variance from the regulations granted pursuant to Part IV, section 4.03.

3.03 Land Under Water Bodies (under any creek, river, stream, pond or lake, flats or ditch)

(1) Preamble

Land Under Water Bodies and Waterways is likely to be significant to wildlife and wildlife habitat, public and private water supply, ground water supply, flood control, storm damage prevention, prevention of pollution and the protection of fisheries.

Where Land Under Water Bodies and Waterways is composed of pervious material, such land represents a point of exchange between surface and ground water.

The physical nature of Land Under Water Bodies and Waterways is highly variable, ranging from deep organic and fine sedimentary deposits to rocks and bedrock. The organic soils and sediments play an important role in the process of detaining and removing dissolved and particulate nutrients (such as nitrogen and phosphorous) from the surface water above. They also serve as traps for toxic substances (such as heavy metal compounds).

Land Under Water Bodies and Waterways, in conjunction with banks, serves to confine flood water within a definite channel during the most frequent storms. Filling within this channel blocks flows which in turn may cause~~s~~ backwater and overbank flooding during such storms. An alteration of Land Under Water Bodies and Waterways that causes water to frequently spread out over a larger area at a lower depth increases the extent of land which is routinely flooded. Additionally, it results in an elevation of water temperature and a decrease in habitat in the main channel, both of which are detrimental to fisheries, particularly during periods of warm weather and low flows.

Land under freshwater bodies is critical to a variety of single-celled animals, worms, arthropods, mollusks and the vertebrates, including fish, amphibians, reptiles, birds and mammals which depend on these animals as a food source.

Emergent and submerged vegetation provide food and shelter for amphibians, reptiles, birds and mammals. A variety of algae, protozoans, worms, insects, snails, and small fishes live among underwater plant stems. Floating plants and the broad flat-leaves of water lilies are habitat to snails, mayflies and other insects that lay their eggs on the underside of leaves. Submerged pondweeds provide a food source for many waterfowl and provide cover for fish, snails and other animals.

Land under ponds and lakes is vital to a large assortment of warm water fish during spawning periods. Species such as largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), blue gills (*Lepomis macrochirus*), pumpkin seeds (*Lepomis gibbosus*), black crappie (*Pomoxis*

nigromaculatus) and rock bass (*Ambloplites rupestris*) build nests on the lake bottom substrates within which they shed and fertilize their eggs.

The spread of exotic invasive species is a threat to freshwater biodiversity. Waterweeds such as Eurasian milfoil (*Myriophyllum spicatum*), waterchestnut (*Trapa natans*), hydrilla (*Hydrilla verticillata*) and fanwort (*Cabomba caroliniana*), once introduced to a pond quickly take over and adversely affect the waterbody by aggressive growth, choking open waterways, degrading the ecological health of the resource as well as its aesthetic appeal for recreational use. Exotic harmful invasive species are not limited to vegetation. Exotic invasive animal species such as zebra mussel (*Dreissena polymorpha*), Asian Clam (*Corbicula fluminea*), grass carp (*Ctenopharyngodon idella*) and the walking catfish (*Clarias batrachus*), damage freshwater biological diversity by altering the ecology of the pond or lake.

The *Generic Environmental Impact Report* (GEIR) provided in 2005 by the DEP for aquatic vegetation control is a guideline. Careful consideration must be given to the interests to be protected versus the potential adverse impact of such control.

Land within 100 feet of any bank abutting land under a water body is likely to be significant to the protection and maintenance of land under a water body, and therefore to the protection of the interests specified above which these water bodies serve to protect.

(2) Definition, Critical Characteristics and Boundaries

(a) Land Under Water Bodies is the land beneath any creek, river, stream, pond, lake or ditch. Said land may be composed of organic muck or peat, fine sediments, gravel or rock.

(b) The physical characteristics and location of Land Under Water Bodies and Waterways specified in the foregoing subsection (2)(a) are critical to the protection of the interests specified in Section 3.03 (1).

(c) The boundary of Land Under Water Bodies is the mean annual low water level.

(3) Performance Standards

Any proposed work, permitted by the Commission, on land under a water body shall not impair the following:

(a) water carrying capacity within the defined channel, which is

provided by said land in conjunction with the banks;

(b) ground and surface water quality; or

(c) capacity of said land to sustain vegetation and to provide breeding habitat and escape cover and food for a variety of wildlife.

3.04 Bordering Land Subject to Flooding

(1) Preamble

Bordering Land Subject to Flooding (BLSF) is an area which floods from a rise in a bordering waterway or water body. Such areas are likely to be significant to flood control and storm damage prevention. Certain portions of BLSF are also likely to be significant to the protection of wildlife and wildlife habitat.

Bordering Land Subject to Flooding provides a temporary storage area for flood water which has overtopped the bar of the main channel of a creek, river or stream or the basin of a pond or lake. During periods of peak runoff, flood waters are both retained (i.e., slowly released through evaporation and percolation) and detained (slowly released through surface discharge) by Bordering Land Subject to Flooding. Over time, incremental filling of these areas causes increases in the extent and level of flooding by eliminating flood storage volume or by restricting flows, thereby potentially causing increases in damage to public and private properties.

The hydrologic regime, plant community composition and structure, topography, soil composition and proximity to water bodies and bordering vegetated wetlands of these portions of BLSF provide important food, shelter, migratory and overwintering areas and breeding areas for wildlife. Many species require or prefer these transitional areas between upland and wetland. Areas along waterbodies or bordering vegetated wetlands are commonly very high in diversity and richness in wildlife and plant communities. Vernal Pool Habitat may be located within BLSF.

(2) Definitions, Critical Characteristics and Boundaries

Bordering Land Subject to Flooding is an area with low, flat topography adjacent to and inundated by flood waters rising from creeks, rivers, streams, ponds, lakes or water courses. It extends from the banks of these waterways and water bodies; where a bordering vegetated wetland occurs, it extends from said wetland.

The topography and location of Bordering Land Subject to Flooding are critical to the protection of the interests specified in Section 3.04 (1).

The boundary of Bordering Land Subject to Flooding is the estimated maximum lateral extent of flood water which will theoretically result from the statistical 100-year frequency storm. Said boundary shall be that determined by reference to the most recently available flood profile data prepared for the community within which the work is proposed under the National Flood Insurance Program (NFIP, currently administered by the Federal Emergency Management Agency). Said boundary, so determined, shall be presumed accurate. This presumption may be overcome only by credible evidence from a registered professional engineer or other professional competent in such matters.

Where NFIP Profile data is unavailable, the boundary of Bordering Land Subject to Flooding shall be the maximum lateral extent of flood water which has been observed or recorded.

Areas within BLSF that have vernal pool characteristics shall be presumed to support vernal pool species pursuant to section 3.06; the presumption is rebuttable upon a clear showing to the contrary.

(3) Performance Standards

Any proposed work permitted by the Commission on Bordering Land Subject to Flooding or within 100 feet of the BLSF shall not result in the following:

(a) flood damage due to filling which causes lateral displacement of water that would otherwise be confined within said area;

(b) an adverse effect on public and private water supply or ground water supply, where said area is underlain by pervious material;

(c) an adverse effect on the capacity of said area to prevent pollution of the ground water, where the area is underlain by pervious material which in turn is covered by a mat of organic peat and muck;

(d) a reduction of the ability of the land to support and provide wildlife habitat.

(e) No activity, other than the maintenance of an already existing structure, which will result in the building within or upon, removing, filling, or altering Bordering Land Subject to Flooding or of any land

within 50ft of Bordering Land Subject to Flooding shall be permitted by the Commission, except for activity which is allowed under PART IV, section 4.01(d) or for any other activity under a variance from the regulations granted pursuant to Part IV, section 4.03.

3.05 Isolated Land Subject to Flooding

(1) Preamble

Isolated Land Subject to Flooding is an isolated depression or a closed basin which serves as a ponding area for runoff or high ground water which has risen above the ground surface. Such areas are likely to be locally significant to flood control and storm damage prevention. In addition, where such areas are underlain by pervious materials they are likely to be significant to public or private water supply and to ground water supply. Finally, where such areas are underlain by pervious material covered by a mat of organic peat and muck, they are also likely to be significant to the prevention of pollution.

Isolated Land Subject to Flooding provides a temporary storage area where runoff and high ground water pond and slowly evaporate or percolate into the substrate. Filling causes lateral displacement of the ponded water onto contiguous properties, which may in turn result in damage to said properties.

Isolated Land Subject to Flooding, where it is underlain by pervious material, provides a point of exchange between ground and surface waters. Contaminants introduced into said area, such as septic system discharges and road salts, find easy access into the ground water and neighboring wells; where these conditions occur and a mat of organic peat or muck covers the substrate of the area, said mat serves to detain and remove contaminants which might otherwise enter the ground water and neighboring wells.

In Chatham, Isolated Land Subject to Flooding (ILSF) is often a kettle hole that gathers runoff from adjacent land and occasionally storm runoff from roadway drainage. "Since 1987, the NHESP has found no instance where an ILSF does not function as vernal pool habitat" (*Massachusetts Aerial Photo Survey of Potential Vernal Pools, Spring 2001*).

(2) Definitions, Critical Characteristics and Boundaries

(a) Isolated Land Subject to Flooding is an isolated depression or closed basin without an inlet or an outlet. It is an area which at least once a year confines standing water.

(b) Isolated Land Subject to Flooding may be underlain by pervious material, which in turn may be covered by a mat of organic peat or muck.

(c) The physical characteristics specified in the foregoing subsections (2)(a) and (2)(b) are critical to the protection of the interests specified in Section 3.05 (1) above.

(d) The boundary of Isolated Land Subject to Flooding is the perimeter of the largest observed or recorded volume of water confined in said area.

(3) Performance Standards

Due to the physical characteristics of Isolated Land Subject to Flooding, an ILSF is presumed to serve as vernal pool habitat unless proven otherwise pursuant to section 3.06.

Any proposed work, permitted by the Commission, on Isolated Land Subject to Flooding or within 100 feet of Isolated Land Subject to Flooding shall not result in the following:

(a) flood damage due to filling which causes lateral displacement of water that would otherwise be confined within said area;

(b) an adverse effect on public and private water supply or ground water supply, where said area is underlain by pervious material;

(c) an adverse effect on the capacity of said area to prevent pollution of the ground water, where the area is underlain by pervious material which in turn is covered by a mat of organic peat and muck; or

(d) impair the functions of the slope to the wetland.

(e) No activity, other than the maintenance of an already existing structure, which will result in the building within or upon, removing, filling, or altering of Isolated Land Subject to Flooding or of any land within 50ft of any Isolated Land Subject to Flooding shall be permitted by the Commission, except for activity which is allowed under PART IV, section 4.01(d) or for any other activity permitted under a variance from the regulations granted pursuant to Part IV, section 4.03.

3.06 Vernal Pool and Vernal Pool Habitat

(1) Preamble

Vernal pools are unique wildlife habitats best known for the amphibians and invertebrate animals that use them to breed. Vernal pools, also known as ephemeral pools, autumnal pools, and temporary woodland ponds, typically fill with water in the autumn or winter due to rising ground water and rainfall and remain ponded through the spring and into summer for at least two months. Vernal pools commonly dry completely by the middle or end of summer each year, or at least every few years. Isolation from permanent water bodies and occasional drying prevent fish from establishing permanent populations. Many amphibian and invertebrate species rely on breeding habitat that is free of fish predators (DFG Website).

The size of vernal pools varies. A vernal pool may be very shallow, holding 5-6 inches of water at a maximum depth, or it may be 2-3 feet deep. A vernal pool may be less than 100 sq ft in area or consist of several acres (*Aerial Photo Survey of Vernal Pools, Spring 2001*, NHESP).

The wood frog (*Rana sylvatica*) and all species of mole salamanders (genus *Ambystoma*) that occur in Massachusetts breed exclusively in vernal pools. Areas in the immediate vicinity of a pool also provide these species with important non-breeding habitat functions, such as feeding, shelter and overwintering sites. Many other species of amphibians utilize vernal pool habitat for breeding and non-breeding functions, although they are not restricted to this type of wetland. The many diverse types of invertebrates that inhabit vernal pools provide important food for various species of birds, mammals and reptiles, as well as amphibians. Some invertebrates, such as fairy shrimps, spend their entire lives in this unique habitat.

Increasing population density and the resultant development, including roadway construction, impact vernal pools and vernal pool species. Critical surrounding habitat is being lost. Changes in contours and drainage characteristics of adjacent areas may alter the hydro-period, thus altering the fauna (E. Colburn, 2004). Overuse of fertilizers and pesticides threatens water quality of vernal pools, which are highly dependent on runoff as a water source. Mosquito control efforts can chemically or biologically affect species in vernal pools other than mosquitoes. Vehicular traffic is a significant problem for slow moving migratory amphibians where almost the entire local population will move on the

same night. Roads constructed near vernal pools contribute to high mortality among pool amphibious species (Paton 2002).

Activities that destroy the connections among vernal pools, and between pools, upland woods and permanent waters, threaten the long-term survival of pool-dependent wildlife populations (E. Colburn, 2004). The elimination of naturally vegetated connections between vernal pools reduces the mobility of animals between vernal pools and isolates vernal pools from other habitats.

Amphibians that breed in vernal pools require large areas of upland forest habitat as adults. The upland habitat provides cover and food sourcing. Common travel distance for the spotted salamander from a vernal pool is about 300 feet. Wood Frogs migrate between 1200-2400 feet from uplands to breeding pools (E. Colburn, 2004).

Vernal pools are indispensable to biodiversity, both locally and globally. For a species with a wide distribution, individual pools are essential to the local population. If these pools are eliminated, the population of that animal will die out in that area. For a species with a narrow distribution, a specific vernal pool might be the only place in which that animal is found. If the pool is destroyed, that species will be extinct.

(2) Characteristics of Vernal Pools

Vernal Pools have the following characteristics:

a) they are within a confined basin with no continuously flowing inlet or outlet, and no continuous surface-water connection with permanently flooded water bodies;

b) they typically occur in or next to forests or other wooded areas;

c) they contain water for at least two consecutive months in most years; and

d) they support no fish populations.

(3) Definition of the Vernal Pool Boundary

The boundary of the vernal pool shall be the maximum observed or recorded water level and shall include the shallowest reaches of the pool. This represents the ecological boundary of the vernal pool. Evidence of water levels, where there may be no clear break in topography, may be determined by leaf staining and other indicators of hydrology.

(4) Definition of the Vernal Pool Habitat Resource Area

The adjacent upland resource area for vernal pools shall extend 100 feet from the boundary defining the vernal pool depression.

(5) Presumption

Vernal pools and the upland surrounding a vernal pool are protected under the Bylaw. The Commission presumes vernal pool habitat exists if the characteristics of a wetland resource area conform with those as described in section 2.0 above.

The presumption of vernal pool habitat may be overcome, however, with the presentation of credible evidence, which in the judgment of the Commission demonstrates that the wetland does not provide, or cannot provide, vernal pool habitat functions.

For the purposes of overcoming the presumption of vernal pool habitat, the Commission will consider:

(a) Evidence that the ponding area does not hold water for at least two continuous months in most years. The term “most years” shall mean three out of five consecutive years, not including years of drought conditions.

(b) Evidence that vernal pool species do not breed or have not bred in the ponding area.

(c) Evidence that the ponding area could not be a viable breeding site for vernal pool species due to incompatible physical, chemical, biological, or other persistent conditions at the site in most years. Such evidence could include, without limitation, several months of pH and dissolved oxygen measurements yielding values incompatible with amphibian or reptile breeding, or the presence of an established fish population.

(6) Timing of Evidence Collection

Many of the indicators of vernal pool habitat are seasonal. For example, certain salamander egg clusters are only found between late March and late May. Wood frog chorusing only occurs between late March and May and then only at night. Consequently, failure to find evidence of breeding must be tied explicitly to those periods during which the evidence is most likely to be available.

Accordingly, in the case of challenges to the presumption of vernal pool habitat, the Commission may require that the determination be postponed until the appropriate time period consistent with the evidence being presented. The Commission may also require its own site visits as necessary to confirm the evidence.

(7) Performance Standards

Any proposed work permitted by the Commission in vernal pool habitat resource area shall not result in the following:

(a) altering topography, soil structure, plant community composition, hydrologic regime and/or water quality in such a way as will result in any short-term or long-term adverse effect upon the vernal pool;

(b) diverting new stormwater runoff into the vernal pool;

(c) draining of the pool either directly or indirectly; or

(d) destroying existing connectivity to upland woods or nearby wetlands.

(e) No activity, other than the maintenance of an already existing structure, which will result in the building within or upon, removing, filling, or altering vernal pool habitat except for activity which is allowed under PART IV, section 4.01(d) or for any other activity permitted under a variance from the regulations granted pursuant to Part IV, section 4.03.